Monthly Progress Report
Corrective Measures Study (CMS) for Potential Release Site (PRS) 16-021(c)
March 2002

This report summarizes Los Alamos National Laboratory (LANL) activities completed during March of fiscal year (FY) 2002 on the CMS for PRS 16-021(c), the 260 outfall. Both the activities described in the CMS plan ([LA-UR-98-3918)], which was submitted to the New Mexico Environment Department-Hazardous Waste Bureau [NMED-HWB] on 9/30/98, and approved by NMED-HWB on 9/8/99), and other related activities are described herein.

Description of Activities and Contacts

High Performing Team (HPT) Activities – The 260 HPT met on March 11, 2002. Topics discussed included: 1) an update on ongoing TA-16-260 CMS activities; 2) a discussion of the HPT retreat that was held in February; 3) an update on ITRD groundwater activities; 4) a discussion of potential locations for geophysical soundings; 5) an update on the time series data for the TA-16 springs; and 6) a brief discussion of the new WQCC regulations.

The status of the CdV-R-37-2 well, the Interim Measure, CMS investigations, and the CMS sampling were updated (see detailed discussion in the February CMS Progress Report and below).

The HPT retreat that was held in February was discussed. The team reviewed things that it could do better, based on the experiences of the other HPTs. It was decided that the 260 HPT needs to improve its outreach activities. The HPT will try to present to the Citizens Advisory Board (CAB) in the near future.

LANL provided a handout detailing the recent ITRD meeting that was held at Pantex. All three groundwater treatment technologies that are being investigated appear to be having success at the laboratory scale. The three technologies are: 1) enhanced in-situ bioremediation; 2) in-situ reduction using dithionite; and 3) in-situ oxidation using permanganate. Although all appear to breakdown HE, issues remain concerning full-scale deployment and intermediate breakdown products. ITRD continues to investigate these issues.

LANL presented information on geophysical sounding methods. It appears that this technique could potentially determine the depth to deep perched aquifers, such as that observed in R-25. A prioritized set of locations for preliminary deployment of the sounding technique at TA-16 was presented. The HPT determined that the technique appeared to be promising and should be pursued at a low, pilot-scale, level to support siting of intermediate depth boreholes.

Time series of RDX, barium and major cation data were reviewed for the three springs. The slight increases in several major constituents that were observed immediately after

the fire, appear to have damped out. There are no obvious chemical signature of the IM source removal that are evident yet. It does not appear that the frequency of sampling in the springs can be reduced at this time.

It was noted that the new WQCC regulations will likely include perchlorate. Tony Grieggs will investigate what the impacts of these new regulations may be on the 260 CMS.

The next HPT meeting is scheduled for April 22, 2002. Agenda items may include ecorisk results, a data update, the IM Report, and a discussion of the RFI and CMS Reports.

RCRA Facility Investigation (RFI) Report and CMS Plan– No new activities occurred during this reporting period.

Best Management Practices (BMPs)– BMPs are inspected quarterly and following significant precipitation events. Due to low levels of precipitation in March, no BMP repairs were required.

CMS Hydrogeologic Investigations–CMS hydrogeologic investigations include ongoing Phase II RFI sampling as well as continuing investigations outlined in the CMS plan.

The ongoing Phase II RFI sampling program includes collecting samples at Martin and Burning Ground spring every other day for stable isotopes. Spring quarterly sampling was completed. Several locations were dry including: SWSC Spring, the 90s Line Pond, the Fish Ladder seep, and the confluence of Canon de Valle and Water Canyon.

The wells, both alluvial and deep, were checked for both presence and level of water. Four out of five alluvial wells in Canon de Valle contained water, the uppermost well was dry. No water was present in all three alluvial wells in Martin Spring Canyon. All of the intermediate depth boreholes were dry.

No samples from precipitation events were collected and archived for analysis during this reporting period.

For well CdV-R-37-2, work was continued on the Well Completion Report. XRF data and thin sections were received.

Ecological Risk Pilot–

Data for the fall sampling was reviewed. It was determined that additional biota sampling will be needed. This will be discussed at the next HPT meeting.

CMS Bench and Pilot Studies–Bench and pilot studies continued in collaboration with the Innovative Treatment Remediation Demonstration (ITRD) Program. The ITRD HE program is focused on two DOE sites: LANL and Pantex. Studies include:

1. A study of the passive barrier technology of Stormwater Management, Inc., which is potentially useful for removing HE and barium from waters.
2. A study of chemical treatment of HE-contaminated soil using zero-valent iron (ZVI). The LANL portion of this study has been completed.
3. At Pantex, a study of in situ anaerobic bioremediation of HE using gas-phase carbon additions.
4. A study of ex situ anaerobic bioremediation of HE-contaminated soils using the W. R. Grace process, which combines anaerobic bioremediation with a ZVI treatment. The LANL portion of this study has been completed.
5. A study of HE composting. Amendments appropriate to northern New Mexico were tested on both clean and contaminated soils. The LANL portion of this study has been completed.
6. A study of immobilization of barium-contaminated sediments from Cañon de Valle. A preliminary study has been completed and further investigations are planned for FY 02.
7. Phytoremediation studies in Cañon de Valle. Native plants are being evaluated for their ability to remove HE from surface waters. Preliminary results suggest that low levels of phytoremediation are occurring in the Burning Ground spring area.
8. Oxidation, reduction, and in-situ bioremediation studies of groundwater contamination at Pantex.

The HEPS field team performed troubleshooting on the Stormwater Management system to determine why it does not appear to be working effectively for barium.

***Interim Measure* (IM)** –

No activities.

Public and Stakeholder Involvement – No activities.

Percentage of CMS Completed

LANL estimates 87 % of the CMS has been completed to date. Note that this percentage does not reflect the deep and potential intermediate wells that will be drilled per the CMS plan addendum.

Problems Encountered/Actions to Rectify Problems

General Problem (1) The Cerro Grande fire has severely impacted the 260 RFI/CMS activities. These problems have been discussed in detail in previous monthly reports.

Action to Rectify General Problem (1): LANL will work closely with NMED through the HPT to mitigate the effects of the Cerro Grande fire. Effects of the fire on the monitoring data in Canon de Valle continue to be addressed.

CMS Hydrogeologic Investigations

Problem (1): Questions relating to the quality of data from well R-25 remains a concern to the TA-16-260 team.

Action to Rectify Problem (1): LANL will evaluate the data from the quarterly sampling of the R-25 well to evaluate its reliability.

CMS Bench and Pilot Studies

Problem (1): The fact that the Stormwater Management unit does not appear to be removing barium is of concern,

Action to Rectify Problem (1): LANL will work with ITRD to determine if there are problems with the barium-specific resin and will potentially evaluate other barrier materials.

IM

None.

Key Personnel Issues

None

Projected Work for April 2002

RFI Report and CMS Plan

- None

BMPs

- Inspection of existing BMPs following significant precipitation events will continue.

CMS Hydrogeologic Investigations

- Maintenance of autosamplers
- Checking for levels and presence of water in alluvial and deep wells.
- Sampling of flow-integrated autosamplers

- Continued precipitation monitoring and sampling for stable isotopes.
- Data analysis
- Completion of rough draft of CdV-R-37-2 Well Completion Report
- Review of data quality objectives for groundwater modeling
- Review of data quality objectives for drilling

Ecological Risk Pilot

- Evaluation of data from ecotoxicity samples

CMS Bench and Pilot Studies

- Evaluation of data from Stormwater units

IM

- Data analysis and writing of IM Report

Public and Stakeholder Involvement

None